

WHAT IS CLAIMED IS:

1. An automatic distributed processing system comprising:

a server machine including:

5 an instruction relay library comprising:

a thread management table for storing thread identifiers in correspondence with threads;

10 a server instruction relay thread for, when an instruction is generated during processing of an application, appending a thread identifier managed by said thread management table to the instruction, and sending the instruction to a client machine in collaboration with a higher-level library of said server machine; and

15 a server instruction distribution thread for distributing a thread which processes another instruction from the client machine; and

a client machine connected to said server machine via a network, said client machine including:

20 an instruction execution module comprising:

a client instruction distribution thread for receiving the instruction sent from said instruction relay thread of said server machine together with the thread identifier, creating a thread that processes the instruction, and passing the received instruction to the created thread together with the thread identifier; and

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an instruction processing thread for processing the received instruction in collaboration with a higher-level library of said client machine, and for, when another instruction is generated upon processing the received instruction or the processing of the received instruction is complete, sending the other instruction or a processing end reply appended with the thread identifier to said instruction distribution thread of said server machine.

2. A computer program product that records a program for operating a server machine that entrusts a process of an instruction to a client machine in an automatic distributed processing system,

said program comprising:

computer readable program code means for making the server machine implement an instruction relay function of appending a thread identifier to an instruction generated during processing of an application of the server machine by looking up a table that manages a relationship between thread identifiers and threads, and sending the instruction to the client machine;

computer readable program code means for making the server machine implement an instruction distribution function of distributing another instruction which is generated upon an instruction process of the client machine and is appended with the

thread identifier to a thread as an entrust source; and

computer readable program code means for making  
the server machine implement a function of returning  
a processing result of the other instruction which is  
5 distributed to and processed by the thread of the  
server machine to the client machine.

3. A computer program product that records  
a program for operating a client machine to which a  
server machine entrusts an instruction in an automatic  
10 distributed processing system,

said program comprising:

computer readable program code means for making  
the client machine implement a thread creation function  
of creating a thread that processes an instruction  
15 received from the server machine together with a thread  
identifier, on the basis of the thread identifier; and

computer readable program code means for making  
the client machine implement a function of sending  
another instruction which is generated while the thread  
20 created by the thread creation function processes the  
instruction to the server machine while appending the  
received thread identifier to the other instruction.

4. An automatic distributed processing system in  
which a server machine and client machine are connected  
25 via a network,

wherein each of the server and client machines  
comprises an instruction relay thread for, when

an instruction is generated upon processing of a self application after an exclusive lock, acquiring a lock and relaying the instruction to a partner machine, and an instruction processing thread for receiving and  
5 processing the instruction from said instruction relay thread,

at least said instruction processing thread of the client machine comprises means for receiving the instruction from the server machine, checking if a self  
10 machine can acquire a lock, and sending a retry request to the server machine if the lock cannot be acquired, and means for acquiring the lock if the lock can be acquired, and sending a reply upon completion of processing of the instruction, and releasing the lock,  
15 and

at least said instruction relay thread of the server machine comprises means for making a retry that temporarily releases the lock, then reacquires the lock, and relays the instruction again upon receiving  
20 the retry request from the client machine, and means for releasing the lock upon receiving the reply indicating end of the instruction from the server machine.

5. A computer program product that records  
25 a program for operating a server machine that entrusts a an instruction in an automatic distributed processing system,

said program comprising:

computer readable program code means for making  
the server machine implement an instruction relay  
function of relaying an instruction, which is generated  
5 during processing of a self application after an  
exclusive lock, to an instruction processing thread of  
the server machine, and setting itself in a reception  
wait state;

10 computer readable program code means for making  
the server machine implement an instruction relay retry  
function of making a retry that temporarily releases  
the lock, then reacquires the lock, and relays the  
instruction again upon receiving a retry request from  
an instruction processing thread of the client machine  
15 during processing of the instruction; and

computer readable program code means for making  
the server machine implement an instruction processing  
end function of releasing the lock and ending the  
instruction upon receiving an instruction end reply  
20 from the instruction processing thread of the client  
machine.

6. A computer program product that records  
a program for operating a client machine to which  
a server machine entrusts an instruction in an  
25 automatic distributed processing system,

said program comprising:

computer readable program code means for making

the client machine implement a lock acquisition checking function of checking if a self machine can acquire a lock, after an instruction is received from the server machine;

5 computer readable program code means for making the client machine implement a retry request function of sending a retry request to the server machine when the checking function determines that the lock cannot be acquired; and

10 computer readable program code means for making the client machine implement an instruction processing function of acquiring an exclusive lock and processing the received function when the checking function determines that the lock can be acquired, sending  
15 a reply to the server machine upon completion of the processing of the instruction, and releasing the lock.

7. An automatic distributed processing system in which a server machine and a client machine having an event processing function are connected via a network,

20 wherein the server machine comprises: an instruction relay thread which has means for, when a first instruction is generated during processing of an application after an exclusive lock, releasing the lock in correspondence with contents of the  
25 instruction, and sending the first instruction to an instruction processing thread of the client machine, and means for ending the first instruction upon

receiving an end reply of the instruction process in  
the instruction processing thread; and an instruction  
processing thread for processing a second instruction  
sent from an event processing thread of the client  
5 machine, and

said client machine comprises: an instruction  
processing thread of the client machine for, when the  
first instruction is received from said instruction  
10 relay thread, acquiring an exclusive lock, processing  
the first instruction, releasing the lock, waiting  
until a restart request is received from the event  
processing thread, releasing the lock upon completion  
of the instruction process after the restart,  
entrusting the end of the instruction process to said  
15 instruction relay thread, and sending a restart request  
to the client machine which is in the wait state; and  
an event processing thread of the client machine for,  
when a second instruction is generated during a self  
event process after an exclusive lock, entrusting the  
20 second instruction to said instruction processing  
thread of the server machine.

8. A computer program product that records a  
program for operating a server machine that entrusts a  
an instruction in an automatic distributed processing  
25 system,

said program comprising:

computer readable program code means for, when

a first instruction is generated during processing of an application after an exclusive lock, making the server machine release the lock in correspondence with contents of the instruction, and send the first  
5 instruction to an instruction processing thread of the client machine;

computer readable program code means for making the server machine end the first instruction upon receiving an end reply of the instruction process in  
10 the instruction processing thread; and

computer readable program code means for making the server machine process a second instruction sent from an event processing thread of the client machine.

9. A computer program product that records a  
15 program for operating a client machine to which a server machine entrusts an instruction in an automatic distributed processing system in which the server and client machines are connected via a network,

said program comprising:

20 computer readable program code means for, when a first instruction is received from the server machine, making the client machine acquire an exclusive lock and process the first instruction, release the lock, wait until a restart request is received from the event  
25 processing thread, release the lock upon completion of the instruction process after the restart, entrust the end of the instruction to the server machine, and send



a restart request to the client machine which is in the wait state; and

5 computer readable program code means for, when a second instruction is generated during a self event process after an exclusive lock, making the client machine entrust the second instruction to the server machine.